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REPLY TO ATTN OF: EM-453 (J. Ciocco, 3-7459)

1992 OCT -2 A 7:34

SUBJECT: Pondsludge Processing Design Criteria for Ponds 207 A, B, C and Clarifier

TO: Frazer Lockhart, Rocky Flats Office

The Office of Southwestern Area Programs, Rocky Flats Branch (EM-453), has reviewed the above-referanced document and is providing the attached comments. Please address these comments before the document is finalized.

Please call Jeff Ciocco at 301-903-7459 if you have any questions related to this request.

Autar Rampertaap
Chief
Rocky Flats Branch
Rocky Flats/Albuquerque Production Division
Office of Southwestern Area Programs

Attachment

cc w/o attachment:
R. Greenberg, EM-453
J. Hartman, RF

1-189

EM45 20-4

ADMIN RECORD

A-0U04-000438

EM-453 COMMENTS ON: THE SOLAR POND/WASTE PROCESSING PROJECT
POND SLUDGE PROCESSING DESIGN CRITERIA FOR
SERIES 207 A, B, AND C POND AND CLARIFIER

## CRITICAL ISSUES

1. The certification of calibration of all control panels and remote instruments should be managed and posted in a readily observable place.

2. A Instrumental Field Engineer should be present at the start-up of the instrumentation to be able to trouble shoot any problems and to ensure proper training of field personnel.

## GENERAL COMMENTS

1. An overall plan map of the affected area of construction would be useful in understanding the layout of the project and how it interrelates with the similar project for Ponds 207A and 207B.

2. Appendix C contains specifications for Structural Design requirements. No such specifications for the Civil Design requirements are provided in Appendix C, only a brief treatise in the text of Volume 1. This apparent lack of balance indicates that the Civil/Geotechnical aspect of this project either has been dealt with elsewhere, will be dealt with elsewhere, or has not been given full design attention to date.

3. An EG&G audit or surveillance of Brown & Root is recommended, if one has not already been performed.

4. An on-site power facility is recommended and should be considered in lieu of diesel-generator supplied power. A cost estimate should be prepared to compare the two alternatives.

5. It is recommended that all "Later" and "Yet to be decided" statements be removed and specifically addressed.

6. Heat tracing is recommended for use on mechanical piping.

7. Please include telephone service in the design criteria.

## SPECIFIC COMMENTS

1. Section 3.2:1.2, p. 9: The text states that drainage of storm waters will be accomplished by surface drainage to existing systems. A statement should be included verifying that the capacity of the existing system will be able to handle an increase in storm water runoff resulting from construction and post construction changes to the infiltration properties of the surface area (i.e., paving, new buildings).

2. Section 3.2.1.5, p. 9: Please specify asphalt type, gravel base size/type, aggregate type to be used for area paving, or state that such metal will meet appropriate local specifications and reference those specifications.

3. Section 3.2.2.4, p. 9: This comment is more for informational purposes. There have been geotechnical reports for other areas at Rocky Flats Plant (RFP) that may be useful in providing specific bearing capacities for soils encountered at the solar ponds. If the conservative value of 1000 pounds per square foot (psf) comes too restrictive to the design, the validity of using higher values, if applicable, should be investigated. Typical allowable bearing capacities range from 2000 psf for gravels; 1500 psf for sand, silty sand, clayey sand, silty gravel, and clayey gravel; to 1000 psf for clay, sandy clay, silty clay, and clayey silt.

4. Section 4.1.3, p. 18: This section indicates that utility connections for flushing or cleanup of cement mixing and casting equipment will be provided. What is the disposal method proposed for this water and how is it to be transferred for treatment?

5. Section 6.1.2, p. 21: Since the pond consolidation is to be done by LEFCO (subcontractor to Halliburton) please identify the vacuum truck to be used in this operation and the reason for its use.

6. Appendix A, Engineering Assurance - Process, Sect. 5, Document Type: Process Description, p. 5: What constitutes a major revision? If any formal revision is intended, please state the revision.

7. Appendix A, Quality System Description, Sec. 1, p. 3: The reference "American National Standards Institute/American Society of Mechanical Engineers (ANSI/ASME) Nuclear Quality Assurance (NQA-1) "is now properly referenced as "ASME NQA-1."

8. Appendix A, Quality System Description, Sect. 7.C.2, p. 7: It is recommended that the Quality Assurance Manager sign off on construction drawings.

9. Appendix A, Quality Assurance Audits, Sect. 4.4, p. 4: The qualifications of the audit team leader and members of the team should be specified.

10. Appendix B, Process Design Criteria Ponds 207A and 207B, Sect. 1.9.5, p. A11: This section indicates that a flocculent will be used and that the type listed is typical. This flocculent should be specified and verified as acceptable in the final solidified product criteria.

11. Appendix B, Process Design Criteria Ponds 207A and 207B, Sect. 1.10.B, p. A12: This section indicates that the samples taken from the cement waste form are "two ½-gallon container sample per waste form batch." This quantity is not what has been reported in previous documents which detail a specific protocol for samples taken. Please clarify.

12. Appendix B, Process Design Assumptions..., Sect. 1.0, p. 1, second paragraph: Adjustments, changes or additions to the system that may be necessary should be controlled by proper change control procedures and should be noted here.

13. Appendix B, Process Design Assumptions..., Sect. 1.3, fifth bulleted item on p. 4: A handwritten note has been entered in the margin that indicates that this section is "not true." Please clarify.

14. Appendix B, Process Design Assumptions..., Sect. 1.4, second bulleted item on p. 5: What is the maximum increase in temperature capable from the indicated temperature control heaters, i.e., how cold can the incoming sludge be and still meet the minimum solidification temperature required?

15. Appendix B, Process Design Assumptions..., Sect. 1.4, fifth bulleted item on p. 5: How is a complete mix of sludge and pozzolan verified when using a continuous operation pub mixer?

16. Appendix B, Process Design Assumptions..., Sect. 1.4, first bulleted item on p. 6: Sampling is based on currently identified waste certification requirements; are there provisions for flexibility in sampling?

17. Appendix B, Process Design Assumptions..., Sect. 2.3.5, p. 18: The residence time in the mixer is approximately 2-4 minutes; is this sufficient time for complete mixing and verification of complete mixing?

18. Appendix B, Process Design Assumptions..., Sect. 2.3.6, first paragraph, p. 22: This "Note" has several sentences which are not clear and might need modification.

19. Appendix B, Casting Station Design Criteria..., p. 2: This section indicates that at station No. 5, EG&G will verify that the half crate is full and is sealed in compliance with criteria. The box is completely closed at this point and only outside criteria can be verified. Please revise appropriately.

20. Appendix C, Sect. 1.7, second paragraph, p. 6 of 21: Please clarify the boundaries of what items will be designed to meet seismic loading. This paragraph states that only the equipment and attachments determined to be "essential or hazardous," and their structural supports/anchors, will be designed to resist all seismic load requirements. However, Sect. 4.9 on p. 13 of 21 indicates that all equipment, and etc. will be designed to resist all seismic-generated horizontal forces.

21. Appendix C, Sect. 3.1.1, first sentence, p. 8 of 21: After "...conical shells," please add "(see Section 3.3)."

22. Appendix C, Sect. 4.8.2, p. 12 of 21: Please indicate the preferred method and/or the method expected to be applied in construction

design. The wind load for open frames can be calculated by assuming an enclosed structure which would completely envelop the actual structure and attachments. This method would be much quicker and apparently more conservative than calculating projected areas for multiple lines of framing.

23. Appendix C, Sect. 4.9.2.1, p. 14 of 21: Please define variable $W_x$ more specifically. Is it the weight of mass from the base (foundation) up to level x or weight of mass from level x to the top of the structure? Also, what is the increment of distribution for $F_x$ along the height of the structure, or is it integrated?

24. Appendix E, Sect. 1.6 c., p. 8: It may be advantageous to develop the approved vendor list rather than using a Brown & Root (B&R) approved vendor list.

25. Appendix E, Sect. 1.6.11, p. 12: The exact details of the requirements should be determined and listed rather than stated as "Yet to be decided."

26. Appendix E, Sect. 1.7.3.8, p. 15: Cable Tray Plans and Details are not listed a required drawings. These details and pans could be required for the cable tray routing between the outdoor equipment and buildings.

27. Appendix E, Sect. 1.11.1.3 c., p. 18: Please specify the high intensity discharge lighting voltage.

28. Appendix E, Sect. 2.1.2, p. 22: This section states that the cables will be laid on the ground which conflicts with other sections which specify that the cables will be laid on cable tray.

29. Appendix E, Sect. 2.2.7, p. 23: Information concerning the generator leads shown as "Later" should be replaced with the sizes required.

30. Appendix E, Sect. 2.2.9.2, p. 24: A generator loading calculation should be performed based on the load starting sequence to determine if the generator size of 750 kVA (as shown) is adequate.

31. Appendix E, Sect. 2.2.11.1 c., p. 26: The size of the mains required should be marked rather than stated as "Later."

32. Appendix E, Sect. 2.2.11.2 c., p. 27: The "Later" should be removed and the size of the mains required should be specified.

33. Appendix E, Sect. 2.2.11.3 c., p. 27: The "Later" should be removed and the size of the mains required should be specified.

34. Appendix E, Sect. 6.2.3.2, p. 47: Please remove "Not Applicable" because the depth of the cable tray is marked as 6."

35. Appendix F, Instrument Design Criteria, Sects. 4.4 and 4.5, p. 11: Please clarify whether these sections are applicable to this project?

If so, they should be defined more clearly in the Piping & Instrumentation Design (P&ID). Section 4.4 also mentions that the shelter "shall be constructed or rest on a concrete slab," a practice which has been prohibited in a previous part of the document.

36. Appendix F, Process Control Philosophy..., Sect. 2.11.6.1, p. 12: Is the half crate delivered to the Casting Line with the necessary bracing already installed? If not where is the bracing installed?

37. Appendix F, Process Control Philosophy..., Sect. 2.11.6.2, p. 13: Are there any plans to insure packing efficiency, i.e., vibration or mechanical packing?

38. Appendix F, Sect. 3.7.1, p. 10: The vendor drawing should be of the instrumentation package.

39. Appendix F, Sect. 3.8, p. 10: Tagging procedures must be adhered to as explained in this instrumentation design criteria.

40. Appendix F, Sect. 4.0, p. 10-11: All test results, procedures, and drawing should be validated and available. This information is needed for the operators and managers.

41. Appendix F, Sect. 10.0, p. 38: All "As Built" drawings for all instrument panels should be provided and maintained at the site to ensure safe operation. This information is needed by operators, managers, and repair personnel.